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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,696	06/04/2001	Jean-Marc Pierre Delavaux	31-2	4773

7590 11/19/2003

Docket Administrator (Room 3J-219)  
Lucent Technologies Inc.  
101 Crawfords Corner Road  
Holmdel, NJ 07733

EXAMINER	
HUGHES, DEANDRA M	
ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/873,696

Applicant(s)

DELAVAUX ET AL.

Examiner

Deandra M Hughes

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Hwang (US 20001/0038477 filed Jan. 23, 2001).

**\*\*Please note that the references made herein are done so for the convenience of the applicant and are in no way intended to be limiting. The reference should be considered its entirety.**

With regard to claim 1, Hwang discloses an apparatus for use in a bidirectional optical wavelength division multiplexed transmission system (see title) in which first direction odd-numbered channels (101) are interleaved with opposite direction even-numbered channels (102) comprising first and second terminals (in 122 and 123, respectively), and a gain block (121 and fig. 2: #121) inserted between the two terminals for amplifying both odd-numbered channel signals propagating from said first to said second terminal (fig. 2 via 119 to 120) and even-numbered channel signals propagating from said second terminal to said first terminal (fig. 2 via 120 to 119), characterized in that the gain block includes an interleaver means (fig. 2: 201) for selectively transmitting

odd-numbered channel signals propagating co-directionally (fig. 2: 203 to 505) from said first to said second terminal and for selectively transmitting even-numbered channel signal propagating co-directionally (fig. 2: 203 to 505) from said second terminal to said first terminal, said interleaver means positioned to block counter-directional signals of said channels.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (figure 2) in view of Lee (US 2002/0018286 filed Dec. 1, 2000).

With regard to claims 1-2 and 4-12, figure 2 discloses an apparatus for use in a bidirectional optical wavelength division multiplexed transmission system in which first direction odd-numbered channels (channels of 11A) are interleaved with opposite direction even-numbered channels (channels of 13A) comprising first and second terminals (11A and 13A), and a gain block (17A, 17B) inserted between the two terminals for amplifying both odd-numbered channel signals propagating from said first to said second terminal and even-numbered channel signals propagating from said second terminal to said first terminal. However, the gain block of figure 2 does not include an interleaver means. Lee teaches an interleaver means (fig. 4) for selectively transmitting odd-numbered channel signals propagating co-directionally (fig. 6) and for

selectively transmitting even-numbered channel signals (fig. 5) wherein said interleaver means is positioned to block counter-directional signals of said channels (see last paragraph of abstract). The interleavers of Lee can be connected ahead or behind each amplifier (fig. 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to place interleaver means in each amplifier path for the advantage of suppressing multiple reflections in wavelength interleaved bidirectional transmission (as is specifically taught by Lee in the abstract; also see applicant's specification pg. 5, line 20).

With regard to claim 3, the amplifiers of figure 2 are poled for the propagation directions.

### ***Claim Objections***

5. Claim 8 is objected to because of the following informalities: 'gain flock' should be 'gain block'. Appropriate correction is required.

### ***Allowable Subject Matter***

6. Claim 13 is allowed.

7. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or make obvious inserting an interleaver into the claimed apparatus comprising a multi-port interleaver having pairs of assigned ports between which the transmissivity is selectively high, a circulator, a bidirectional optical amplifier **and a mirror**, characterized in that said foregoing elements are arranged such that a first set of two sets of interleaved wavelengths is applied from the first of the two terminals to a first port of an assigned pair of ports for travel in turn through the

interleaver and exiting at the second of the assigned pair of ports for travel in turn through the circulator **and bidirectional optical amplifier to the mirror, and after reflection returns through the circulator to one of a pair of assigned ports of the interleaver for exit at the other port of the assigned pair to the second terminal,** and the second set of the two sets when applied to the second terminal travels to the first terminal by way of assigned ports of the interleaver, the circulator, the bidirectional amplifier **and the mirror, and returns, after reflection, by the mirror, through the bidirectional amplifier, the circulator and the interleaver to the first terminal.**

### **Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Duerkesn '213, Lee '212, Krummrich '449, Duerksen '709, Glance '289, Giles '741, Hwang '477, Lee '656, and Aina '660 disclose bidirectional optical amplifiers.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Black can be reached on 703-305-9707. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

*JWA*

*Thomas G. Black*  
THOMAS G. BLACK  
SUPERVISORY PATENT EXAMINER  
GROUP 3600